

299-W18-82 (A7565) Log Data Report

Borehole Information:

Borehole: 299-W18-82 (A7565)		Site: South of 216-Z-18 Crib			
Coordinates (WA St Plane)		GWL¹ (ft): Not applicable	GWL Date: 07/30/03		
North (m)	East (m)	Drill Date	Ground Level Elevation	Total Depth (ft)	Type
135216.029	566395.551	11/58	687.59 ft	146.0	Cable

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Steel	2.4	6 5/8	6.0	5/16	+2.4	149.0

Borehole Notes:

The logging engineer measured the casing stickup using a steel tape. A caliper was used to measure the outside casing diameter. The caliper and inside casing diameter were measured using a steel tape, rounded to the nearest 1/16 in.; casing thickness was calculated. Ledgerwood (1993) reported total depth at 146 ft; however, total logging depth was 149 ft. Casing stickup may be the cause of the depth discrepancy. Ledgerwood (1993) did not provide casing information. Coordinates and top of casing (TOC) elevation are derived from HWIS². Logging data acquisition is referenced to the TOC.

Logging Equipment Information:

Logging System: Gamma 1E	Type: SGLS (70%) SN: 34TP40587A
Calibration Date: 07/03	Calibration Reference: GJO-2003-468-TAR
Logging Procedure: MAC-HGLP 1.6.5, Rev. 0	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2	3 Repeat		
Date	07/30/03	07/31/03	07/31/03		
Logging Engineer	Spatz	Spatz	Spatz		
Start Depth (ft)	34.0	149.0	32.0		
Finish Depth (ft)	3.0	33.0	17.0		
Count Time (sec)	100	100	100		
Live/Real	R	R	R		
Shield (Y/N)	N	N	N		
MSA Interval (ft)	1.0	1.0	1.0		
ft/min	N/A ³	N/A	N/A		
Pre-Verification	AE009CAB	AE011CAB	AE011CAB		
Start File	AE010000	AE011000	AE011117		
Finish File	AE010031	AE011116	AE011132		

Log Run	1	2	3 Repeat		
Post-Verification	AE010CAA	AE011CAA	AE011CAA		
Depth Return Error (in.)	0	N/A	-1		
Comments	No fine-gain adjustment.	No fine-gain adjustment.	No fine-gain adjustment.		

Logging Operation Notes:

Spectral gamma logging was performed in this borehole on July 30 and 31, 2003. Logging was conducted with a centralizer on the sonde and measurements are referenced to top of casing. A repeat section was collected in this borehole to evaluate system performance.

Analysis Notes:

Analyst:	Henwood	Date:	08/05/03	Reference:	GJO-HGLP 1.6.3, Rev. 0
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Pre-run and post-run verifications for the logging system were performed before and after each day's data acquisition. The acceptance criteria were met.

A casing correction for 0.3125-in.-thick casing was applied throughout the borehole.

SGLS spectra were processed in batch mode using APTEC SUPERVISOR to identify individual energy peaks and determine count rates. Concentrations were calculated with an EXCEL worksheet template identified as G1EJul03.xls using an efficiency function and corrections for casing and dead time as determined from annual calibrations. Dead time and water corrections were not necessary.

Log Plot Notes:

Separate log plots are provided for the man-made radionuclide (^{137}Cs) detected in the borehole, naturally occurring radionuclides (^{40}K , ^{238}U , ^{232}Th [KUT]), a combination of man-made, KUT, and dead time, and total gamma plotted with dead time. For each radionuclide, the energy value of the spectral peak used for quantification is indicated. Unless otherwise noted, all radionuclides are plotted in picocuries per gram (pCi/g). The open circles indicate the minimum detectable level (MDL) for each radionuclide. Error bars on each plot represent error associated with counting statistics only and do not include errors associated with the inverse efficiency function, dead time correction, casing corrections, or water corrections. A repeat log section is also included.

Results and Interpretations:

^{137}Cs was the man-made radionuclide detected in this borehole. ^{137}Cs was detected at one location near its MDL of approximately 0.15 pCi/g.

There are notable changes in the KUT and total gamma logs that may be used for stratigraphic correlation with other nearby boreholes.

The repeat sections indicated good agreement of the naturally occurring KUT.

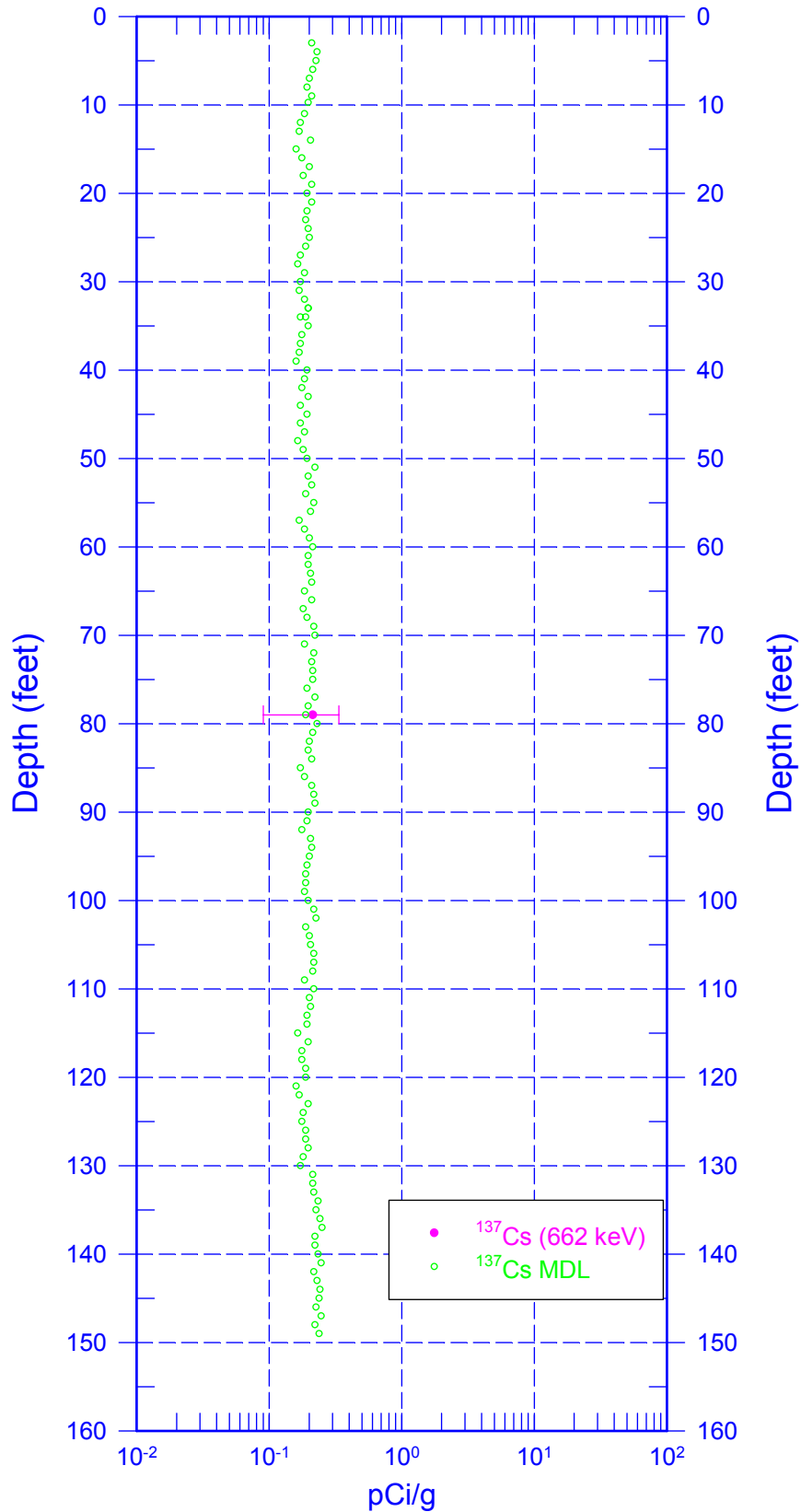
¹ GWL – groundwater level

² HWIS – Hanford Well Information System

³ N/A – not applicable

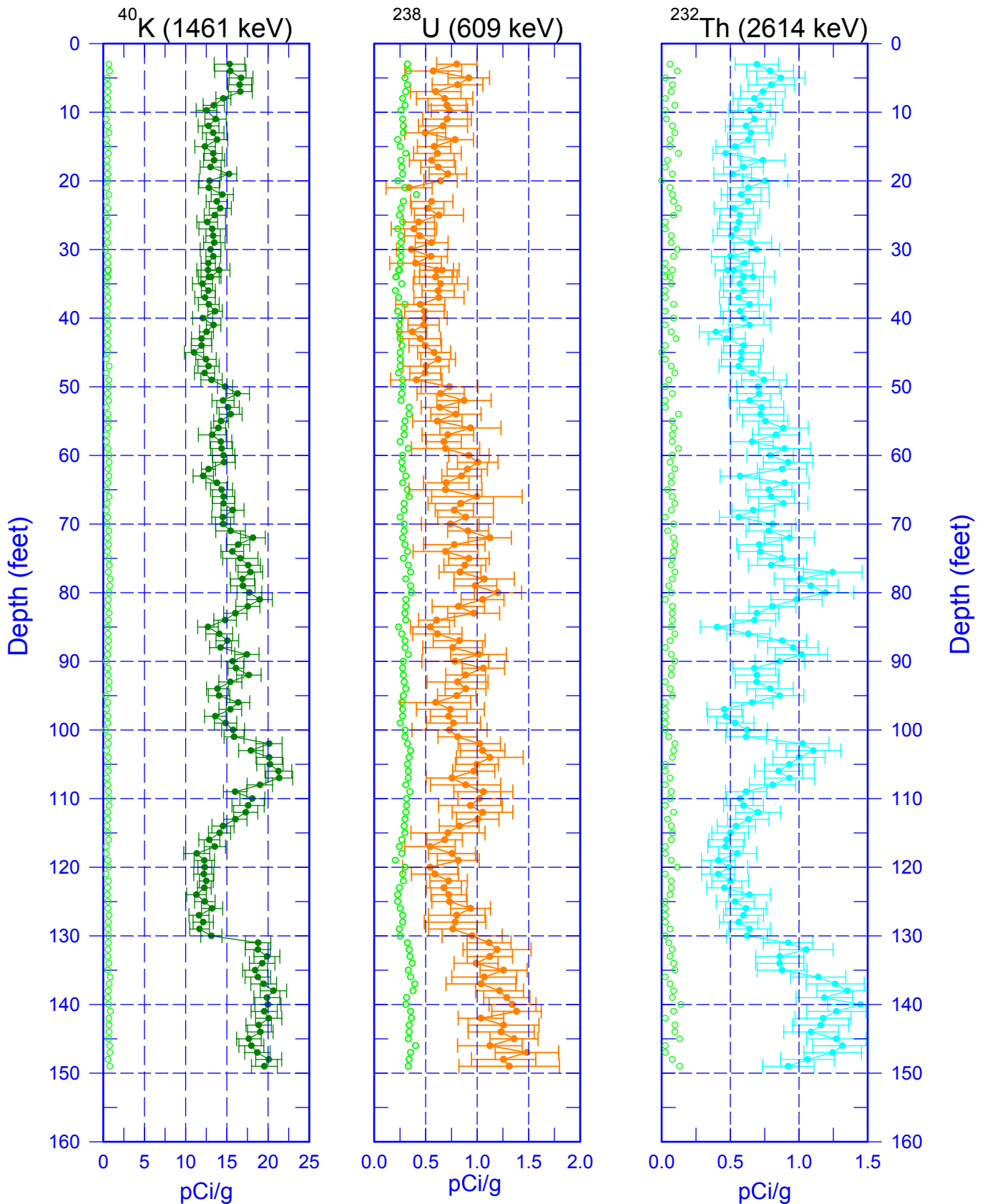
299-W18-82 (A7565)

Man-Made Radionuclides



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Natural Gamma Logs

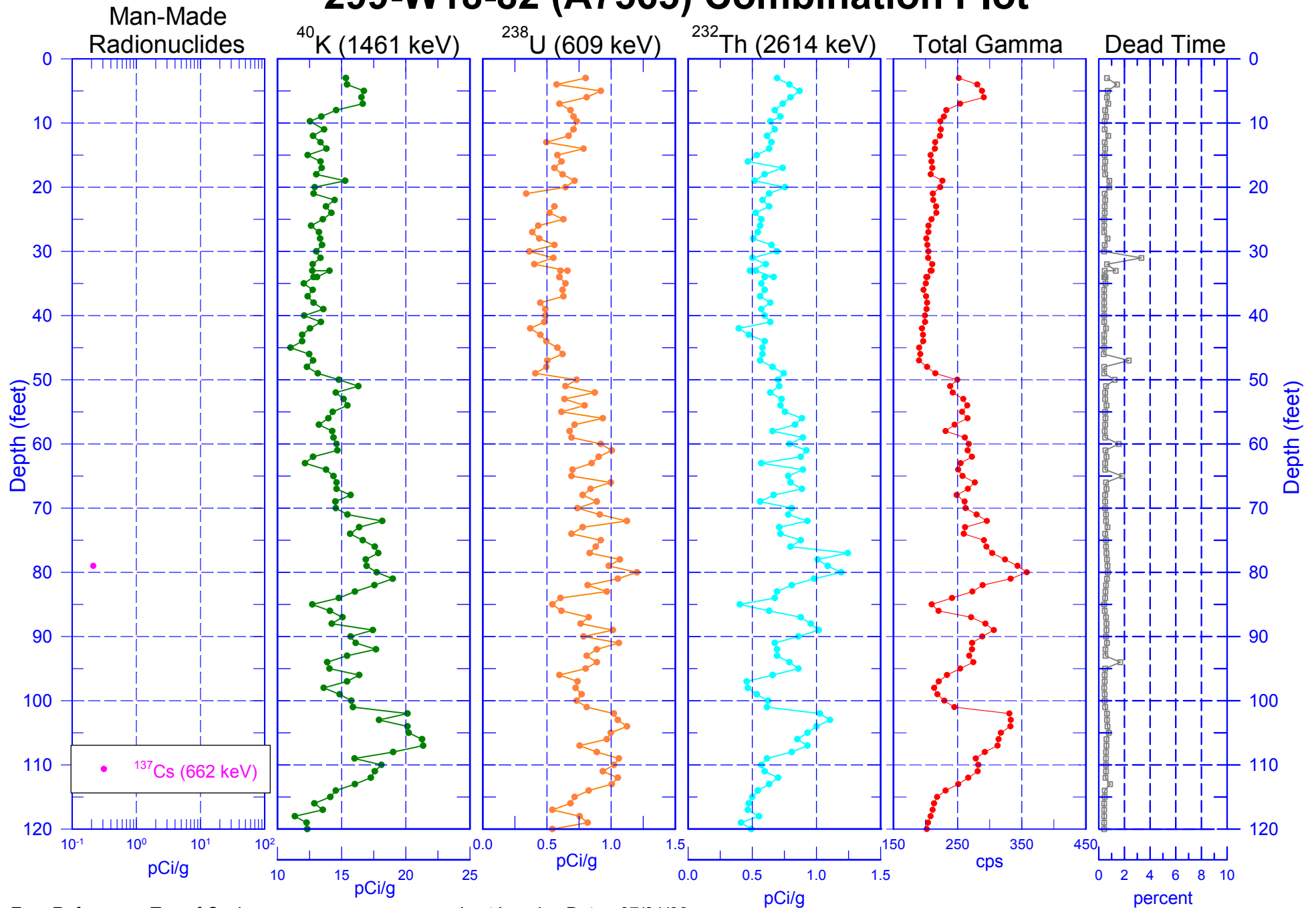


Zero Reference = Top of Casing

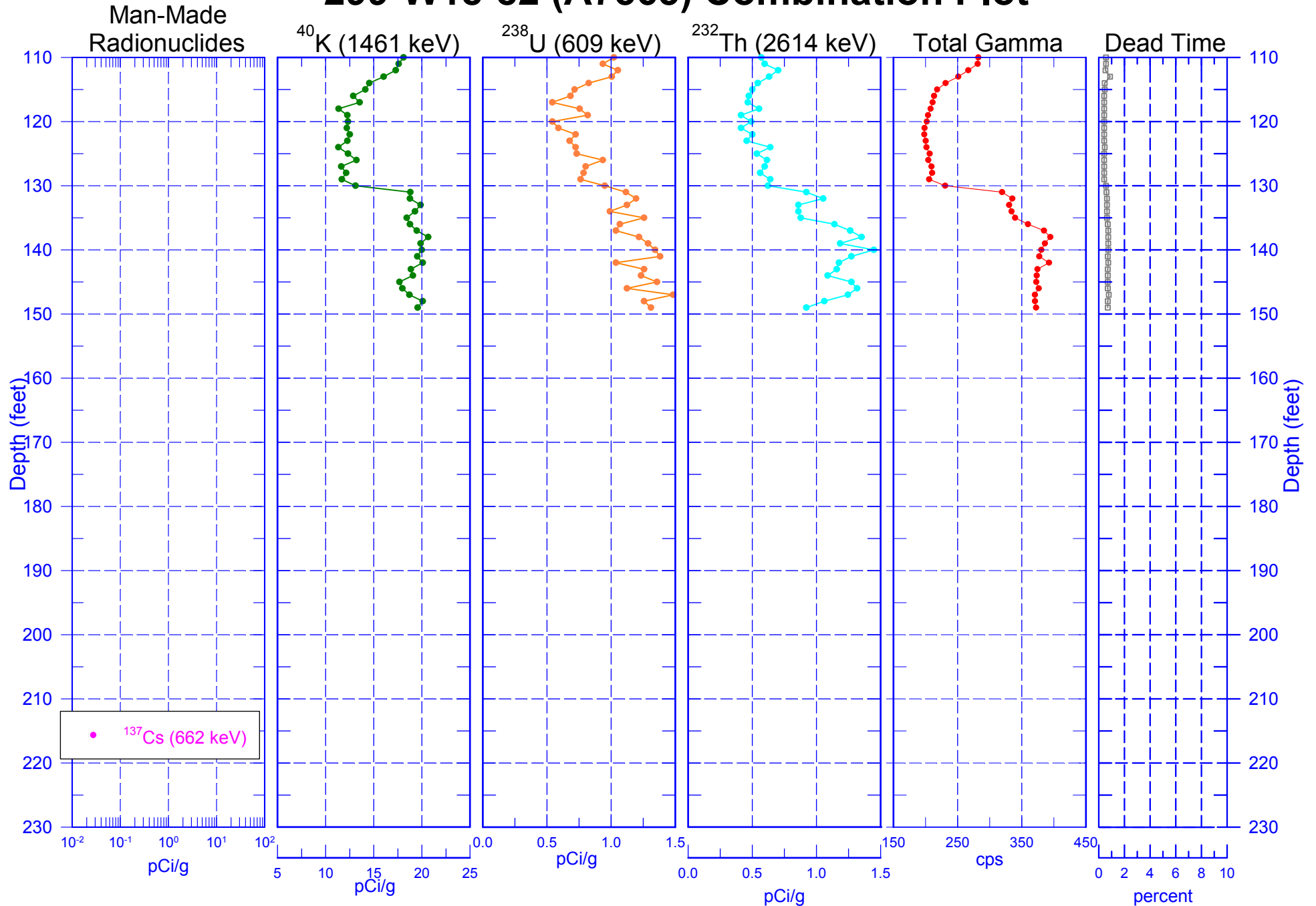
○ MDL

Last Log Date - 07/31/03

299-W18-82 (A7565) Combination Plot



299-W18-82 (A7565) Combination Plot

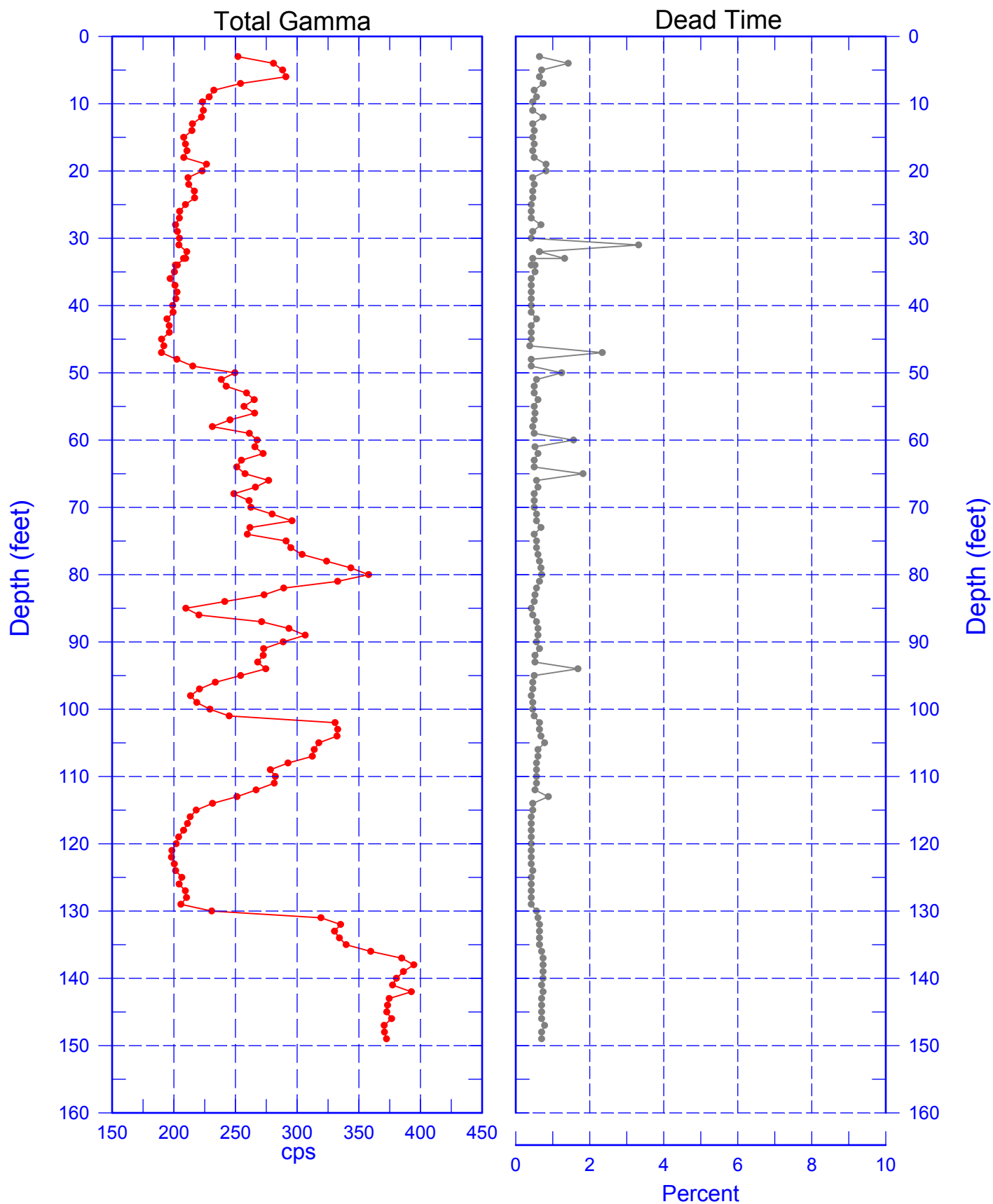


Zero Reference - Top of Casing

Last Logging Date - 07/31/03

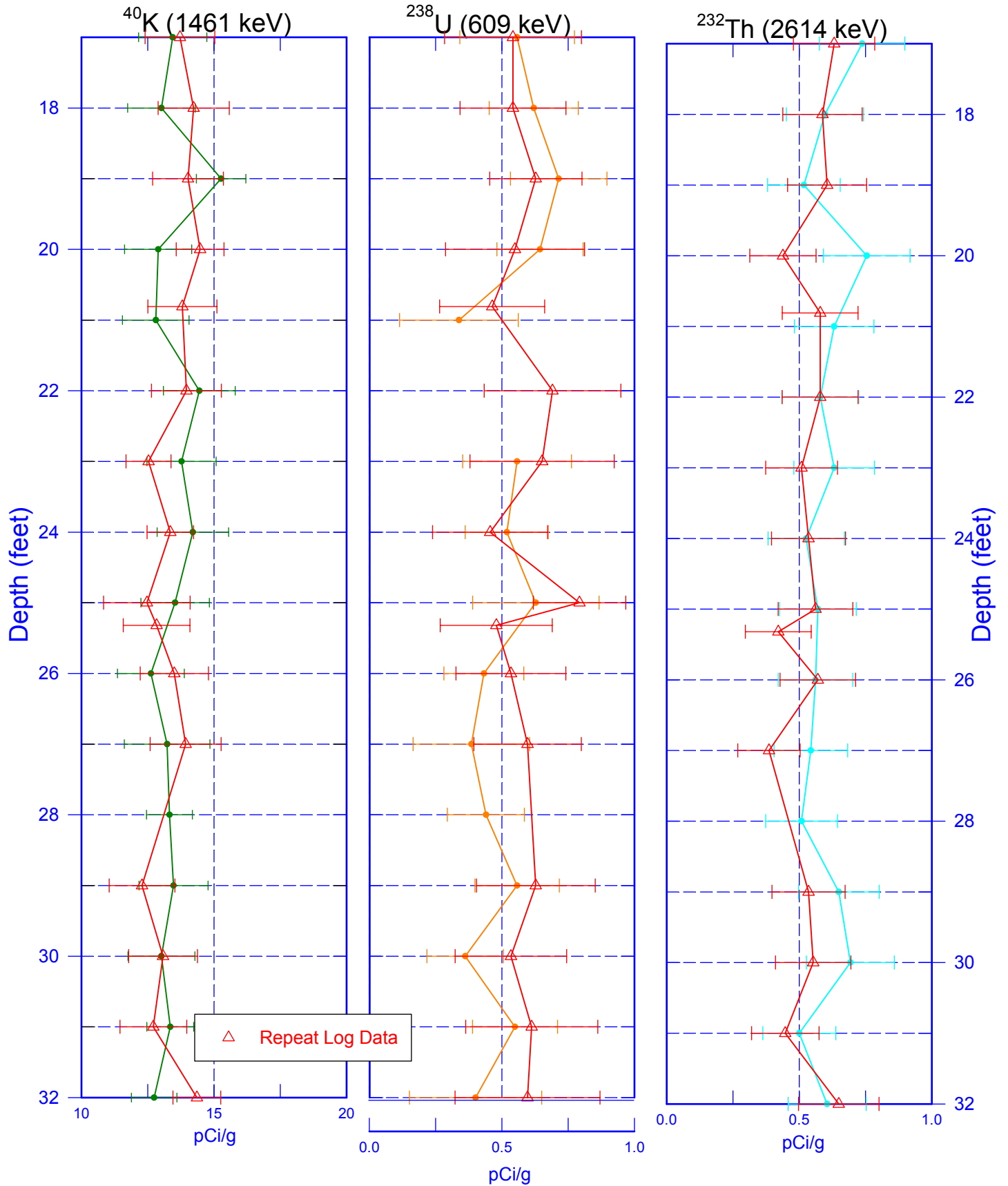
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Total Gamma & Dead Time



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Repeat Section of Natural Gamma Logs



Zero Reference - Top of Casing

Last Log Date - 07/31/03